Search Pgm 17

WEST Search History

DATE: Tuesday, April 15, 2003

Set Name side by side	Query	Hit Count	Set Name result set
DB=USPT,PGPB,JPAB,EPAB,DWPI; PLUR=YES; OP=ADJ			
L4	L3 and @ay<1994	3	L4
L3	L2 same (gene or polynucleotide or oligonucleotide)	52	L3
L2	L1 same (stress or heat shock)	191	L2
L1	senescence	2795	L1

END OF SEARCH HISTORY

WEST

Generate Collection | Print

Search Results - Record(s) 1 through 3 of 3 returned.

☐ 1. Document ID: US 5674701 A

L4: Entry 1 of 3 File: USPT Oct 7, 1997

US-PAT-NO: 5674701
DOCUMENT-IDENTIFIER: US 5674701 A

TITLE: Method of identifying plant pathogen tolerance

DATE-ISSUED: October 7, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Ecker; Joseph R.	Erial	NJ		
Staskawicz; Brian J.	Castro Valley	CA		
Bent; Andrew F.	Piedmont	CA		
Innes; Roger W.	Bloomington	IN		

US-CL-CURRENT: 435/32; 435/7.2, 47/58.1R

ABSTRACT:

A process for identifying a plant having disease tolerance comprising administering to a plant an inhibitory amount of ethylene and screening for ethylene insensitivity, thereby identifying a disease tolerant plant, is described. Plants identified by the foregoing process are also described.

21 Claims, 7 Drawing figures
Exemplary Claim Number: 21
Number of Drawing Sheets: 5

L4: Entry 1 of 3 File: USPT Oct 7, 1997

DOCUMENT-IDENTIFIER: US 5674701 A
TITLE: Method of identifying plant pathogen tolerance

Application Filing Year (1):
1993

Brief Summary Text (2):
As in animal systems, response of plants to disease not only involves static processes, but also involves inducible defense mechanisms. One of the earliest detectable event to occur during plant-pathogen interaction is a rapid increase in ethylene biosynthesis. Ethylene, a gaseous plant hormone, is involved in the regulation of a number of plant processes ranging from growth and development to fruit ripening. Ethylene biosynthesis, in response to pathogen invasion, correlates with increased defense mechanisms, chlorosis, senescence and abscission. The molecular mechanisms underlying operation of ethylene action, however, are unknown. Nonetheless, ethylene produced in response to biological stress is known to regulate the rate of transcription of specific plant genes. A variety of biological stresses can induce ethylene production in plants including wounding, bacterial, viral or fungal infection as can treatment with elicitors, such as glycopeptide elicitor

preparations (prepared by chemical extraction from fungal pathogen cells). Researchers have found, for example, that treatment of plants with ethylene generally increases the level of many pathogen-inducible "defense proteins", including .beta.-1,3-glucanase, chitinase, L-phenylalanine ammonia lyase, and hydroxyproline-rich glycoproteins. The genes for these proteins can be transcriptionally activated by ethylene and their expression can be blocked by inhibitors of ethylene biosynthesis. Researchers have also characterized a normal plant response to the production or administration of ethylene, as a so-called "triple response". The triple response involves inhibition of root and stem elongation, radial swelling of the stem and absence of normal geotropic response (diageotropism).

☐ 2. Document ID: US 5304490 A

L4: Entry 2 of 3 File: USPT Apr 19, 1994

US-PAT-NO: 5304490
DOCUMENT-IDENTIFIER: US 5304490 A

TITLE: DNA constructs containing fruit-ripening genes

DATE-ISSUED: April 19, 1994

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Bird; Colin R.	Berkshire			GB2
Fray; Ruper G.	Nottingham			GB2
Grierson; Donald	Loughborough			GB2
Lycett; Grantley W.	Loughborough			GB2
Ray; John A.	Bracknell			GB2
Schuch; Wolfgang W.	Crowthorne			GB2

US-CL-CURRENT: 435/320.1; 536/23.6, 800/317.4

ABSTRACT:

DNA constructs useful for modifying the ripening behavior of fruit comprise a transcriptional initiation region operative in plants positioned for transcription of a DNA sequence homologous to some or all of a fruit-ripening gene encoded by either of the clones pTOM136 or pTOM66, so that the construct can generate RNA in plant cells. Also plant cells and plants transformed with such constructs.

3 Claims, 3 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 6

L4: Entry 2 of 3 File: USPT Apr 19, 1994

DOCUMENT-IDENTIFIER: US 5304490 A
TITLE: DNA constructs containing fruit-ripening genes

Application Filing Year (1):
1991

Brief Summary Text (24):
The expression of a gene substantially homologous to the pTOM66 gene is transiently

enhanced by incubation of ripening tomato fruit at 35.degree. C. (Picton S. and Grierson D. Plant Cell Environ. 11, 265-272, 1988). If incubation at this temperature is continued, pTOM66-related MRNA does not accumulate to the same level as in fruit incubated at is 250C. The transient expression of the pTOM66 related gene in response to heat stress is typical of the heat shock response that has been observed in nearly all organisms and tissues studied (Schlesinger et al, "Heat Shock from Bacteria to Man"; Cold Spring Harbour Laboratory, New York, 1982). It is not known whether the expression of the genes encoding pTOM136 and other related cDNAs is enhanced by heat stress. An MRNA highly homologous to pTOM66 has also been shown to accumulate during tomato leaf senescence (Davies and Grierson, Planta, 179, 73-80, 1989).

☐ 3. Document ID: US 5139954 A

L4: Entry 3 of 3 File: USPT Aug 18, 1992

US-PAT-NO: 5139954
DOCUMENT-IDENTIFIER: US 5139954 A

TITLE: DNA promoter fragments from wheat

DATE-ISSUED: August 18, 1992

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Litts; James C.	Davis	CA		
Marcotte, Jr.; William R.	Wilmington	DE		
Quatrano; Ralph S.	Wilmington	DE		

US-CL-CURRENT: 435/320.1; 536/23.2, 536/23.6, 536/24.1

ABSTRACT:

The preparation and use of nucleic acid promoter fragments homologous to the Em gene of wheat to bring the expression of selected genes in plants under external control are described. The Em promoter fragment is responsive to abscisic acid (ABA) and other compounds possessing ABA-like activity. Through transformation of protoplasts and plant cells with recombinant DNA constructs incorporating such promoter fragments, operably linked selected genes are expressed in response to ABA and compounds possessing ABA-like activity. The application of such promoter fragments and constructs to transient assay systems to predict the likelihood of stable transformation in plants is disclosed.

11 Claims, 14 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 15

L4: Entry 3 of 3 File: USPT Aug 18, 1992

DOCUMENT-IDENTIFIER: US 5139954 A
TITLE: DNA promoter fragments from wheat

Application Filing Year (1):
1990

Detailed Description Text (66):

To bring plant gene expression under external chemical control in the field requires that the chemical not only be able to induce specific gene expression in transgenic plants, but that the chemical have unique traits that will allow it to be effective under field conditions, e.g., light stable, ability to be translocated within the plant, etc. Equally important will be a lack of toxicity or additional physiological effects on the plant. For example, ABA is a natural growth regulator found in all seed plants (c.f., Davies, P. (Ed.) Plant Hormones and Their Roles In Plant Growth and Development., Martinus Nijhoff Publ. (1987)). It is light sensitive and will have pronounced physiological effects when applied to certain plant parts (c.f., Zeevaart and Creelman, Ann. Rev. Plant Physiol., 39:439-473 (1988)). For example, when sprayed on leaves, ABA will cause stomates to close and thereby prevent gaseous exchange between the plant and the atmosphere. ABA has also been shown to inhibit seen germination, and to play a role in bud/seed dormancy, leaf senescence and in responses of plants to various physical stresses such as temperature and water. Numerous compounds have been described that mimic the effect of ABA on one or more of these processes (or any other ABA-mediated process) and are referred to as "ABA-like". If ABA-like compounds are to be used as chemical inducers of selected genes at all stages, their effects on these key physiological processes must be minimized or eliminated.

Term	Documents
@AY.DWPI,EPAB,JPAB,USPT,PGPB.	20695707
(3 AND (@AY < "1994")).USPT,PGPB,JPAB,EPAB,DWPI.	3
(L3 AND @AY<1994).USPT,PGPB,JPAB,EPAB,DWPI.	3

Search Paper 17

Welcome to STN International! Enter x:x

LOGINID:SSSPTA1805JXB

PASSWORD:
TERMINAL (ENTER 1, 2, 3, OR ?):2

* * * * * * * * * * Welcome to STN International * * * * * * * * * *

NEWS 1		Web Page URLs for STN Seminar Schedule - N. America
NEWS 2	Apr 08	"Ask CAS" for self-help around the clock
NEWS 3	Jun 03	New e-mail delivery for search results now available
NEWS 4	Aug 08	PHARMAMarketLetter(PHARMAML) - new on STN
NEWS 5	Aug 19	Aquatic Toxicity Information Retrieval (AQUIRE) now available on STN
NEWS 6	Aug 26	Sequence searching in REGISTRY enhanced
NEWS 7	Sep 03	JAPIO has been reloaded and enhanced
NEWS 8	Sep 16	Experimental properties added to the REGISTRY file
NEWS 9	Sep 16	CA Section Thesaurus available in CAPLUS and CA
NEWS 10	Oct 01	CASREACT Enriched with Reactions from 1907 to 1985
NEWS 11	Oct 24	BEILSTEIN adds new search fields
NEWS 12	Oct 24	Nutraceuticals International (NUTRACEUT) now available on STN
NEWS 13	Nov 18	DKILIT has been renamed APOLLIT
NEWS 14	Nov 25	More calculated properties added to REGISTRY
NEWS 15	Dec 04	CSA files on STN
NEWS 16	Dec 17	PCTFULL now covers WP/PCT Applications from 1978 to date
NEWS 17	Dec 17	TOXCENTER enhanced with additional content
NEWS 18	Dec 17	Adis Clinical Trials Insight now available on STN
NEWS 19	Jan 29	Simultaneous left and right truncation added to COMPENDEX, ENERGY, INSPEC
NEWS 20	Feb 13	CANCERLIT is no longer being updated
NEWS 21	Feb 24	METADEX enhancements
NEWS 22	Feb 24	PCTGEN now available on STN
NEWS 23	Feb 24	TEMA now available on STN
NEWS 24	Feb 26	NTIS now allows simultaneous left and right truncation
NEWS 25	Feb 26	PCTFULL now contains images
NEWS 26	Mar 04	SDI PACKAGE for monthly delivery of multifile SDI results
NEWS 27	Mar 19	APOLLIT offering free connect time in April 2003
NEWS 28	Mar 20	EVENTLINE will be removed from STN
NEWS 29	Mar 24	PATDPAFULL now available on STN
NEWS 30	Mar 24	Additional information for trade-named substances without structures available in REGISTRY
NEWS 31	Mar 24	Indexing from 1957 to 1966 added to records in CA/CAPLUS
NEWS 32	Apr 11	Display formats in DGENE enhanced
NEWS 33	Apr 14	MEDLINE Reload

NEWS EXPRESS	April 4 CURRENT WINDOWS VERSION IS V6.01a, CURRENT MACINTOSH VERSION IS V6.0b(ENG) AND V6.0Jb(JP), AND CURRENT DISCOVER FILE IS DATED 01 APRIL 2003
NEWS HOURS	STN Operating Hours Plus Help Desk Availability
NEWS INTER	General Internet Information
NEWS LOGIN	Welcome Banner and News Items
NEWS PHONE	Direct Dial and Telecommunication Network Access to STN
NEWS WWW	CAS World Wide Web Site (general information)

Enter NEWS followed by the item number or name to see news on that specific topic.

All use of STN is subject to the provisions of the STN Customer agreement. Please note that this agreement limits use to scientific

research. Use for software development or design or implementation of commercial gateways or other similar uses is prohibited and may result in loss of user privileges and other penalties.

* * * * * * * * * * * * * * STN Columbus * * * * * * * * * * * * * * * *

FILE 'HOME' ENTERED AT 11:02:29 ON 15 APR 2003

=> file .pub
COST IN U.S. DOLLARS

	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	0.21	0.21

FILE 'MEDLINE' ENTERED AT 11:03:09 ON 15 APR 2003

FILE 'BIOSIS' ENTERED AT 11:03:09 ON 15 APR 2003
COPYRIGHT (C) 2003 BIOLOGICAL ABSTRACTS INC. (R)

=> s cdc7 and yeast
L1 208 CDC7 AND YEAST

=> s l1 and (longevity or senescence)
L2 1 L1 AND (LONGEVITY OR SENESCENCE)

=> d bib ab

L2 ANSWER 1 OF 1 MEDLINE
AN 90214760 MEDLINE
DN 90214760 PubMed ID: 2698814
TI Replication control and cellular life span.
AU Jazwinski S M; Egilmez N K; Chen J B
CS Department of Biochemistry and Molecular Biology, Louisiana State University Medical Center, New Orleans 70112.
SO EXPERIMENTAL GERONTOLOGY, (1989) 24 (5-6) 423-36.
Journal code: 0047061. ISSN: 0531-5565.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199005
ED Entered STN: 19900622
Last Updated on STN: 19900622
Entered Medline: 19900518
AB Cell proliferation involves both control of progress through the current cell cycle and coordination of successive cell cycles. We have focused our attention on the events that trigger traversal of the G1/S boundary of the cell cycle. A protein kinase activity was found in preparations of the DNA-replicative complex from the budding **yeast** Saccharomyces cerevisiae. The activity phosphorylated only a few of the proteins present in the replicative fraction, and it displayed a marked preference for a 48-kDa polypeptide. Most importantly, the protein kinase activity was heat-sensitive in replicative fractions from **cdc7** cells, a mutant that arrests at the G1/S boundary at restrictive temperature. The results suggest that phosphorylation of components of the replication machinery may play a role in control of initiation of DNA replication during the cell cycle. We have also begun an analysis of cellular aging in **yeast**, as a means of addressing the problem of coordination of successive cell cycles. **Yeast** cells have a finite life span defined by reproductive capacity. With age, the generation time of **yeast** cells lengthened. The cell cycle of the daughter cell was under the control of the mother. This control was transient, and the

daughter cell began dividing at the rate characteristic of its own age within three divisions of its birth. This suggests that the senescent phenotype, as manifested by lengthened generation time, is a dominant feature in **yeast** cells, and that it is determined by a diffusible cytoplasmic molecule(s) that undergoes turnover in young cells. In a search for this putative **senescence** factor(s), we are cloning genes that differentially expressed during the **yeast** life span. Several such genes have been isolated and partially characterized. Our goals are to determine whether the expression of one or more of these genes is casually associated with cell **longevity** . We propose the Cell Spiral model to describe the relationship between the cell cycle and cellular aging.

=> FIL STNGUIDE

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	2.65	2.86

FILE 'STNGUIDE' ENTERED AT 11:05:29 ON 15 APR 2003
USE IS SUBJECT TO THE TERMS OF YOUR CUSTOMER AGREEMENT
COPYRIGHT (C) 2003 AMERICAN CHEMICAL SOCIETY, JAPAN SCIENCE AND TECHNOLOGY CORPORATION, AND FACHINFORMATIONSZENTRUM KARLSRUHE

FILE CONTAINS CURRENT INFORMATION.
LAST RELOADED: Apr 11, 2003 (20030411/UP).

=>

---Logging off of STN---

=>
Executing the logoff script...

=> LOG Y

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	0.12	2.98

STN INTERNATIONAL LOGOFF AT 11:06:38 ON 15 APR 2003

Search Page 17

Welcome to STN International! Enter x:x

LOGINID:SSSPTA1805JXB

PASSWORD:
TERMINAL (ENTER 1, 2, 3, OR ?):2

* * * * * * * * * * Welcome to STN International * * * * * * * * * *

NEWS 1		Web Page URLs for STN Seminar Schedule - N. America
NEWS 2	Apr 08	"Ask CAS" for self-help around the clock
NEWS 3	Jun 03	New e-mail delivery for search results now available
NEWS 4	Aug 08	PHARMAMarketLetter(PHARMAML) - new on STN
NEWS 5	Aug 19	Aquatic Toxicity Information Retrieval (AQUIRE) now available on STN
NEWS 6	Aug 26	Sequence searching in REGISTRY enhanced
NEWS 7	Sep 03	JAPIO has been reloaded and enhanced
NEWS 8	Sep 16	Experimental properties added to the REGISTRY file
NEWS 9	Sep 16	CA Section Thesaurus available in CAPLUS and CA
NEWS 10	Oct 01	CASREACT Enriched with Reactions from 1907 to 1985
NEWS 11	Oct 24	BEILSTEIN adds new search fields
NEWS 12	Oct 24	Nutraceuticals International (NUTRACEUT) now available on STN
NEWS 13	Nov 18	DKILIT has been renamed APOLLIT
NEWS 14	Nov 25	More calculated properties added to REGISTRY
NEWS 15	Dec 04	CSA files on STN
NEWS 16	Dec 17	PCTFULL now covers WP/PCT Applications from 1978 to date
NEWS 17	Dec 17	TOXCENTER enhanced with additional content
NEWS 18	Dec 17	Adis Clinical Trials Insight now available on STN
NEWS 19	Jan 29	Simultaneous left and right truncation added to COMPENDEX, ENERGY, INSPEC
NEWS 20	Feb 13	CANCERLIT is no longer being updated
NEWS 21	Feb 24	METADEX enhancements
NEWS 22	Feb 24	PCTGEN now available on STN
NEWS 23	Feb 24	TEMA now available on STN
NEWS 24	Feb 26	NTIS now allows simultaneous left and right truncation
NEWS 25	Feb 26	PCTFULL now contains images
NEWS 26	Mar 04	SDI PACKAGE for monthly delivery of multifile SDI results
NEWS 27	Mar 19	APOLLIT offering free connect time in April 2003
NEWS 28	Mar 20	EVENTLINE will be removed from STN
NEWS 29	Mar 24	PATDPAFULL now available on STN
NEWS 30	Mar 24	Additional information for trade-named substances without structures available in REGISTRY
NEWS 31	Mar 24	Indexing from 1957 to 1966 added to records in CA/CAPLUS
NEWS 32	Apr 11	Display formats in DGENE enhanced
NEWS 33	Apr 14	MEDLINE Reload

NEWS EXPRESS	April 4 CURRENT WINDOWS VERSION IS V6.01a, CURRENT MACINTOSH VERSION IS V6.0b(ENG) AND V6.0Jb(JP), AND CURRENT DISCOVER FILE IS DATED 01 APRIL 2003
NEWS HOURS	STN Operating Hours Plus Help Desk Availability
NEWS INTER	General Internet Information
NEWS LOGIN	Welcome Banner and News Items
NEWS PHONE	Direct Dial and Telecommunication Network Access to STN
NEWS WWW	CAS World Wide Web Site (general information)

Enter NEWS followed by the item number or name to see news on that specific topic.

All use of STN is subject to the provisions of the STN Customer agreement. Please note that this agreement limits use to scientific

research. Use for software development or design or implementation of commercial gateways or other similar uses is prohibited and may result in loss of user privileges and other penalties.

* * * * * * * * * * * * * * STN Columbus * * * * * * * * * * * * * * *

FILE 'HOME' ENTERED AT 13:20:36 ON 15 APR 2003

=> file .pub
COST IN U.S. DOLLARS

	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	0.21	0.21

FILE 'MEDLINE' ENTERED AT 13:20:48 ON 15 APR 2003

FILE 'BIOSIS' ENTERED AT 13:20:48 ON 15 APR 2003
COPYRIGHT (C) 2003 BIOLOGICAL ABSTRACTS INC.(R)

=> s senescence
L1 21120 SENESCENCE

=> s l1 and (stress or heat shock)
L2 1719 L1 AND (STRESS OR HEAT SHOCK)

=> s l2 and (gene or polynucleotide or oligonucleotide)
L3 400 L2 AND (GENE OR POLYNUCLEOTIDE OR OLIGONUCLEOTIDE)

=> s l3 and py<1994
L4 27 L3 AND PY<1994

=> duplicate remove l4
DUPLICATE PREFERENCE IS 'MEDLINE, BIOSIS'
KEEP DUPLICATES FROM MORE THAN ONE FILE? Y/(N):n
PROCESSING COMPLETED FOR L4
L5 24 DUPLICATE REMOVE L4 (3 DUPLICATES REMOVED)

=> d 1-24 bib ab

L5 ANSWER 1 OF 24 MEDLINE
AN 94042962 MEDLINE
DN 94042962 PubMed ID: 7693662
TI Induction of cellular **senescence** by transfection of cytosolic mortalin cDNA in NIH 3T3 cells.
AU Wadhwa R; Kaul S C; Sugimoto Y; Mitsui Y
CS National Institute of Bioscience and Human Technology, Agency of Industrial Science and Technology, Ibaraki, Japan.
SO JOURNAL OF BIOLOGICAL CHEMISTRY, **(1993 Oct 25)** 268 (30) 22239-42.
Journal code: 2985121R. ISSN: 0021-9258.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199312
ED Entered STN: 19940117
Last Updated on STN: 19960129
Entered Medline: 19931201
AB We have recently identified a novel member of hsp70 family (mortalin) as a mortality marker (Wadhwa, R., Kaul, S. C., Ikawa, Y., and Sugimoto, Y. (1993) J. Biol. Chem. 268, 6615-6621). It has distinct intracellular distribution in mortal and immortal fibroblasts. Here, we report that the

cytosolic (mot-1) and the perinuclear (mot-2) forms of mortalin cDNA cloned from mortal and immortal cells, respectively, differ by only two bases in the open reading frame, resulting in two amino acid changes. The induced expression of the cytosolic form by transfection of mot-1 cDNA (isolate from CD1-ICR mouse embryonic fibroblasts) to NIH 3T3 cells induced cellular **senescence**. However, the perinuclear form expressed by mot-2 cDNA (isolate from NIH 3T3 cells) did not yield an equivalent effect. The data suggest the **senescence**-inductive function of cytosolic mortalin and implicitly point to a genetic event involved in immortalization.

L5 ANSWER 2 OF 24 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
AN 1993:432828 BIOSIS
DN PREV199396087453
TI Genetic and physiological analysis of a new locus in Arabidopsis that confers resistance to 1-aminocyclopropane-1-carboxylic acid and ethylene and specifically affects the ethylene signal transduction pathway.
AU Van Der Straeten, Dominique; Djudzman, An; Van Caeneghem, Wim; Smalle, Jan; Van Montagu, Marc (1)
CS (1) Lab. Voor Genetica, Universiteit Gent, B-9000 Gent Belgium
SO Plant Physiology (Rockville), (1993) Vol. 102, No. 2, pp. 401-408. ISSN: 0032-0889.
DT Article
LA English
AB A population of M-2 seedlings of Arabidopsis thaliana was screened for mutants that were insensitive to the ethylene precursor 1-aminocyclopropane-1-carboxylate (ACC). Several independent lines were obtained and proved insensitive to both ACC and ethylene. Two lines were identified as alleles of a single recessive mutation, designated ain1. Linkage analysis indicated that the ain1 **gene** is located on chromosome 1, adjacent to the cer5 marker and, therefore, genetically distinct from previously identified ethylene resistance loci. General phenotypic aspects of ain1 mutants were similar to wild type. For both alleles, the level of insensitivity to ethylene at the seedling stage was indistinguishable in terms of elongation growth. In contrast, the gravitropic response of ain1-1 seedlings was slower than that of wild-type and ain1-2 seedlings. At the adult stage, **stress** responses of mutants were similar to wild type. However, ethylene-induced leaf **senescence** was delayed in both mutants. In addition, we observed significant interallelic variation in ethylene production rates. Growth inhibition experiments showed that the ain1 mutation does not confer resistance to other hormones. Thus, ain1 most probably affects a step specific for the ethylene signal transduction pathway.

L5 ANSWER 3 OF 24 MEDLINE DUPLICATE 1
AN 94063056 MEDLINE
DN 94063056 PubMed ID: 8243646
TI Impaired **gene** transcription and nuclear protein kinase C activation in the brain and liver of aged rats.
AU Rogue P J; Ritz M F; Malviya A N
CS Laboratoire de Neurobiologie Moleculaire des Interactions Cellulaires (UPR 416 du CNRS), Strasbourg, France.
SO FEBS LETTERS, **(1993 Nov 22)** 334 (3) 351-4. Journal code: 0155157. ISSN: 0014-5793.
CY Netherlands
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199312
ED Entered STN: 19940201
Last Updated on STN: 19940201
Entered Medline: 19931230
AB The expression of the hsp70 and c-fos **genes** and the activation of nuclear protein kinase C (PKC) were studied in young and aged whole

rats under **heat-shock** conditions. The induction of hsp70 and c-fos **genes** by **heat shock** were decreased several fold in the brain as well as in the liver of senescent animals. Nuclear run-off transcription assay indicated that this age-related impairment could be attributed to a block at the level of transcription. Nuclear PKC activation by **heat shock** was not apparent in old animals. Nuclear PKC involvement in the repression of transcription during **senescence** is postulated.

L5 ANSWER 4 OF 24 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
AN 1994:345594 BIOSIS
DN PREV199497358594
TI The aging dependent effects of oxidative **stress** on the expression of some **genes**.
AU Litoshenko, A. Ya.; Roginets, N. V.
CS Inst. Gerontol., Acad. Med. Sci. Ukr., Kiev Ukraine
SO Biopolimery i Kletka, (1993) Vol. 9, No. 6, pp. 86-89. ISSN: 0233-7657.
DT Article
LA Russian
SL Russian; Ukrainian; English
AB The effect of aging and oxidative **stress** on the expression of adenine deaminase, albumin and c-myc were explored. The liver was perfused in situ by 17 mM H-2O-2. The expression (mRNA levels) of these **genes** was estimated by dot-hybridization analysis of total RNA. Our results indicate that the expression of these **genes** increases during rats **senescence**. It was shown that the oxidative **stress** induced the increase of mRNA levels these **genes** in liver of young and old rats.

L5 ANSWER 5 OF 24 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
AN 1993:207387 BIOSIS
DN PREV199395108612
TI Differences in **gene** expression between natural and artificially induced leaf **senescence**.
AU Becker, Walter; Apel, Klaus (1)
CS (1) Inst. Pflanzenwissenschaften, ETH Zurich, Univ. 2, CH-8092 Zurich Switzerland
SO Planta (Heidelberg), (1993) Vol. 189, No. 1, pp. 74-79. ISSN: 0032-0935.
DT Article
LA English
AB **Gene** expression during artificially induced **senescence** of barley (Hordeum vulgare L.) leaves was examined by in-vitro translation and mRNA hybridization with several copy-DNA (cDNA) clones for newly induced transcripts. When detached barley leaves were incubated in darkness, **senescence** symptoms as indicated by chlorophyll loss were rapidly induced. By in-vitro translation, concomitant changes in translatable mRNA levels were shown to occur with some translation products decreasing and others increasing in abundance. For closer analysis, cDNA clones for newly induced transcripts were isolated by differential screening. Six cDNA clones, derived from three different transcripts were identified and classified according to the expression of the respective mRNAs. Two of the three transcripts showed very similar expression patterns: in detached leaves they were induced by abscisic acid and inhibited by kinetin. They were also induced by wounding and osmotic **stress**, but could not be detected in naturally senescing leaves. The third mRNA, represented by only one of the six cDNA clones, behaved differently. There was no significant effect of hormone application, wounding or drought conditions, but the transcript accumulated during natural **senescence** of barley flag leaves. We conclude that only a minor part of the mRNA changes observed during dark incubation of detached leaves is connected with leaf **senescence**, whereas stess-related transcripts appear to predominate quantitatively.

L5 ANSWER 6 OF 24 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
AN 1994:156244 BIOSIS
DN PREV199497169244
TI The path of chromoplast development in fruits and flowers.
AU Marano, Maria R.; Serra, Esteban C.; Orellano, Elena G.; Carrillo, Nestor (1)
CS (1) Dep. Ciencias Biologicas, Area Biologia Mol., Fac. de Ciencias Bioquimicas y Farmaceuticas, Universidad Nacional de Rosario, Suipacha 531, 2000 Rosario Argentina
SO Plant Science (Limerick), (1993) Vol. 94, No. 1-2, pp. 1-17. ISSN: 0168-9452.
DT General Review
LA English

L5 ANSWER 7 OF 24 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
AN 1993:189240 BIOSIS
DN PREV199395099690
TI Pathogenetic mechanisms in dementias of the Alzheimer's type.
AU Martin, George M.; Fukuchi, Ken-Ichiro
CS Dep. Pathology, Univ. Washington, Seattle, WA 98195 USA
SO Current Science (Bangalore), (1992) Vol. 63, No. 8, pp. 410-416. ISSN: 0011-3891.
DT Article
LA English
AB This review addresses two of the most intellectually challenging and socially important problems of contemporary biology and medicine: 1) Why do aging cohorts of many populations of human beings become so extraordinarily susceptible to the set of pathologies that currently define dementias of the Alzheimer's type? 2) How do these lesions develop-i.e. what are the detailed mechanistic steps that lead from etiology or etiologies to phenotypic expression? A plausible answer to the first question can be provided by the current conclusions of evolutionary biologists concerning nonadaptive mechanisms for the evolution of **senescence**. The second question has at least a partial answer in that, in a few rare pedigrees, there is compelling evidence that a specific **gene** mutation, involving the beta-amyloid precursor protein, is the primary cause of an early onset of the disease. Thus, we now have a metabolic pathway that serves as a working hypothesis for a candidate pathogenetic mechanism for all forms of the disorder. The major challenge is to elucidate how intrinsic biological aging impacts upon this pathway. An additional challenge is to discover environmental agents that can modulate the rates of development of specific components of the pathology, including beta-amyloidogenesis. While candidate agents include head trauma, **stress**, various neurotoxins and novel infectious agents, there is as yet no proof that these or other exogenous factors are of major significance.

L5 ANSWER 8 OF 24 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
AN 1993:29049 BIOSIS
DN PREV199395017249
TI Role of oxidative **stress** in Drosophila aging.
AU Fleming, J. E. (1); Reveillaud, I.; Niedzwiecki, A.
CS (1) Dep. Biol., Eastern Wash. Univ., Cheney, WA 99004 USA
SO Mutation Research, (1992) Vol. 275, No. 3-6, pp. 267-279. ISSN: 0027-5107.
DT Article
LA English
AB We review the role that oxidative damage plays in regulating the lifespan of the fruit fly, Drosophila melanogaster. Results from our laboratory show that the lifespan of Drosophila is inversely correlated to its metabolic rate. The consumption of oxygen by adult insects is related to the rate of damage induced by oygen radicals, which are purported to be generated as by-products of respiration. Moreover, products of activated

oxygen species such as hydrogen peroxide and lipofuscin are higher in animals kept under conditions of increased metabolic rate. In order to understand the in vivo relationship between oxidative damage and the production of the superoxide radical, we generated transgenic strains of Drosophila melanogaster that synthesize excess levels of enzymatically active superoxide dismutase. This was accomplished by P-element transformation of Drosophila melanogaster with the bovine cDNA for CuZn superoxide dismutase, an enzyme that catalyzes the dismutation of the superoxide radical to hydrogen peroxide and water. Adult flies that express the bovine SOD in addition to native Drosophila SOD are more resistance to oxidative **stress** and lifespan of Drosophila can be manipulated by molecular genetic intervention. In addition, we have examined the ability of adult flies to respond to various environmental **stresses** during **senescence**. Resistance to oxidative **stress**, such as that induced by **heat shock**, is drastically reduced in senescent flies. This loss of resistance is correlated with the increase in protein damage generated in old flies by thermal **stress** and by the insufficient protection from cellular defense systems which includes that **heat shock** proteins as well as the oxygen radical scavenging enzymes. Collectively, results from our laboratory demonstrate that oxidative damage plays a role in governing the lifespan of Drosophila during normal metabolism and under conditions of environmental **stress**.

L5 ANSWER 9 OF 24 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
AN 1992:491423 BIOSIS
DN BR43:100623
TI TRANSCRIPTIONAL REPRESSION OF SPECIFIC **GENES** AND DIMINISHED ACTIVATION OF NUCLEAR PKC DURING **SENESCENCE** POTENTIAL RELEVANCE TO ALZHEIMER'S DISEASE.
AU ROGUE P; VINCENDON G; MALVIYA A N
CS L.N.M.I.C., CENTRE NEUROCHIMIE C.N.R.S., 67084 STRASBOURG, FR.
SO THIRD INTERNATIONAL CONFERENCE ON ALZHEIMER'S DISEASE AND RELATED DISORDERS, ABANO TERME, ITALY, JULY 12-17, 1992. NEUROBIOL AGING. (1992) 13 (SUPPL 1), S68.
CODEN: NEAGDO. ISSN: 0197-4580.
DT Conference
FS BR; OLD
LA English

L5 ANSWER 10 OF 24 MEDLINE
AN 93052050 MEDLINE
DN 93052050 PubMed ID: 1330863
TI Steroid hormones: effect on brain development and function.
AU McEwen B S
CS Laboratory of Neuroendocrinology, Rockefeller University, New York.
NC MH 41256 (NIMH)
MH 43787 (NIMH)
NS 07080 (NINDS)
SO HORMONE RESEARCH, **(1992)** 37 Suppl 3 1-10. Ref: 30
Journal code: 0366126. ISSN: 0301-0163.
CY Switzerland
DT Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, TUTORIAL)
LA English
FS Priority Journals
EM 199212
ED Entered STN: 19930122
Last Updated on STN: 19930122
Entered Medline: 19921223
AB Hormones secreted by the adrenals, gonads and thyroid play an important role in mediating how the environment shapes the structure and function of the brain during early development, adult life and **senescence**.

Many of these hormone effects occur at the level of **gene** transcription, via the actions of intracellular hormone receptors which are DNA-binding proteins. Other effects occur at the membrane level via receptors on the cell surface that produce rapid effects on bioelectrical activity and secondary messenger systems. Hormone effects on the brain are classified as organizational, occurring during development; cyclical, occurring during maturity; experiential, depending on the individual experiences; and disorganizational, leading to damage and destruction of neural tissue. Organizational effects, such as occur as a result of testosterone action during sexual differentiation, give rise to group differences; whereas experiential effects, in which hormone secretion is evoked on an individual basis according to personal life events, are responsible for individual differences even between identical twins having the same genetic constitution. Experiential effects, often involving **stress** and possibly thyroid hormones, may result in adaptation or may lead to disorganization and damage under extreme and deleterious conditions.

L5 ANSWER 11 OF 24 MEDLINE
AN 92068881 MEDLINE
DN 92068881 PubMed ID: 1659889
TI Brain corticosteroid receptor **gene** expression and neuroendocrine dynamics during aging.
AU van Eekelen J A; Rots N Y; Sutanto W; Oitzl M S; de Kloet E R
CS Division of Medical Pharmacology, University of Leiden, The Netherlands.
SO JOURNAL OF STEROID BIOCHEMISTRY AND MOLECULAR BIOLOGY, **(1991)** 40 (4-6) 679-83.
Journal code: 9015483. ISSN: 0960-0760.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199201
ED Entered STN: 19920124
Last Updated on STN: 19920124
Entered Medline: 19920108
AB The present study examined the **stress** responsiveness of the hypothalamic-pituitary-adrenal axis in relation to the properties of corticosteroid receptors in the brain and pituitary in old (30 months) and young (3 months) male Brown Norway rats. The data demonstrate that circulating ACTH rather than the corticosteroid plasma level was elevated under basal conditions and following **stress**. Furthermore, a reduction of mineralocorticoid receptor (MR) number in the hippocampus and of glucocorticoid receptor (GR) number in the hypothalamus and the pituitary correspond to increased neuroendocrine responsiveness and negative feedback following **stress**. The changes in receptor binding do not parallel the changes in the amount of MR and GR mRNA measured with in situ hybridization. This suggests that the processing rather than the receptor **gene** expression is affected in **senescence**.

L5 ANSWER 12 OF 24 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
AN 1991:409009 BIOSIS
DN BA92:75974
TI DELAYED LEAF **SENESCENCE** IN TOBACCO PLANTS TRANSFORMED WITH TMR A **GENE** FOR CYTOKININ PRODUCTION IN AGROBACTERIUM.
AU SMART C M; SCOFIELD S R; BEVAN M W; DYER T A
CS AFRC INST. GRASSLAND. ENVIRON. RES., WELSH PLANT BREED. STN., PLAS GOGERDDAN, ABERYSTWYTH, DYFED, SY23 3EB, UK.
SO PLANT CELL, (1991) 3 (7), 647-656.
CODEN: PLCEEW. ISSN: 1040-4651.
FS BA; OLD
LA English
AB The aim of this study was to investigate whether enhanced levels of

endogenous cytokinins could influence plant development, particularly leaf **senescence**. Tobacco plants were transformed with the Agrobacterium tumefaciens **gene** tmr, under the control of the soybean **heat shock** promoter HS6871. his **gene** encodes the enzyme isopentenyl transferase, which catalyzes the initial step in cytokinin biosynthesis. After **heat shock**, the cytokinin level increased greatly and the level of tmr mRNA, undetectable at 20.degree. C, rose and remained high for up to 8 hours. The levels of cytokinin and tmr mRNA were substantially lower by 24 hours. Transformed plants grown at 20.degree. C were shorter, had larger side shoots, and remained green for longer than untransformed plants. The differences were more pronounced after several **heat shocks** of whole plants or defined areas of leaves. Our results demonstrated that plant morphology and leaf **senescence** can be manipulated by changing the endogenous level of cytokinins.

L5 ANSWER 13 OF 24 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
AN 1991:204065 BIOSIS
DN BA91:107290
TI EVIDENCE FOR A **SENESCENCE**-ASSOCIATED **GENE** INDUCED BY DARKNESS.
AU AZUMI Y; WATANABE A
CS RES. INST. BIOCHEM. REGULATION, SCH. AGRIC., NAGOYA UNIV., CHIKUSA-KU, NAGOYA 464-01, JPN.
SO PLANT PHYSIOL (BETHESDA), (1991) 95 (2), 577-583.
CODEN: PLPHAY. ISSN: 0032-0889.
FS BA; OLD
LA English
AB A nearly full-length cDNA was isolated from a cDNA library prepared from incipiently senescent radish (Raphanus sativus L.) cotyledons using a previously isolated cDNA clone for dark-inducible mRNA as a probe (A Watanable, N Kawakami, Y Azumi [1989] In Cell Separation in Plants, NATO ASI Series, Vol H35, pp 31-38. Springer-Verlag, Berlin). The clone detected transcripts of 800 bases which increased more than 100-fold after 24 hours of darkness. The transcripts also accumulated under light when plants were exposed to ethylene or heat **stress**, and 6N-benzyladenine partially repressed its accumulation in the dark. These responses of the **gene** to physiological stimuli closely paralleled the effects of the stimuli on the progress of **senescence** of the cotyledons. We have named the **gene** din1 (dark inducible **gene** 1). The cDNA encodes a polypeptide of 20 kilodaltons, and its nucleotide sequence shows a high (49%) similarity to a subfamily of pathogenesis-related proteins of tobacco. The predicted amino acid sequence of the product, however, shows only 20% homology to the pathogenesis-related protein.

L5 ANSWER 14 OF 24 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
AN 1991:197328 BIOSIS
DN BR40:94608
TI SOME **GENES** REGULATED BY OXIDATIVE **STRESS** ARE ALSO EXPRESSED DURING AGING IN SOYBEAN SEEDS.
AU GIDROL X; DEGOUSEE N; NOUBHANI A
CS STN. PHYSIOL. VEG., INRA, B.P. 81, 33883 VILLENAVE D'ORNON CEDEX, FR.
SO SYMPOSIUM ON THE GENETIC DISSECTION OF PLANT CELL PROCESSES HELD AT THE 20TH ANNUAL MEETING OF THE KEYSTONE SYMPOSIA ON MOLECULAR AND CELLULAR BIOLOGY, KEYSTONE, COLORADO, USA, JANUARY 10-17, 1991. J CELL BIOCHEM SUPPL. (1991) 0 (15 PART A), 56.
CODEN: JCBSD7.
DT Conference
FS BR; OLD
LA English

L5 ANSWER 15 OF 24 MEDLINE
AN 91267092 MEDLINE

DN 91267092 PubMed ID: 2097168
TI Oxidative **stress** as a causal factor in differentiation and aging: a unifying hypothesis.
CM Comment in: Exp Gerontol. 1991;26(5):511-7
AU Sohal R S; Allen R G
CS Department of Biological Sciences, Southern Methodist University, Dallas, Texas 75275.
SO EXPERIMENTAL GERONTOLOGY, **(1990)** 25 (6) 499-522. Ref: 182
Journal code: 0047061. ISSN: 0531-5565.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, ACADEMIC)
LA English
FS Priority Journals
EM 199107
ED Entered STN: 19910811
Last Updated on STN: 19910811
Entered Medline: 19910722
AB In this article, the authors have pointed out flaws in the current version of the free radical hypothesis of aging and have advanced a new hypothesis that reconciles and encapsulates existing information. The main premise of this hypothesis is that aging is a continuation of development and is thus influenced by genetically programmed phenomena. Completion of various genetic programs and the duration of life are linked to a metabolic potential which is itself a genetically determined sum of energy expenditure. Nevertheless, the rate at which metabolic potential is reached is linked to the rate of metabolism and the level of oxidative **stress** both of which are influenced by epigenetic stimuli. The current version of the free radical hypothesis postulates that partially reduced oxygen species are produced in aerobic cells in an uncontrolled fashion and do not play any useful physiological function. The principle tenet of the free radical hypothesis is that molecular damage is the underlying cause of aging and that O2- radicals and derivatives induce most of the damage sustained by cells during aging. The authors regard this hypothesis as flawed because it fails to explain either low randomly occurring damage can lead to age-associated changes that are species-specific, or the sequential nature of the changes that occur in aging organisms. In contrast to the free radical hypothesis, our hypothesis can explain the specific and sequential nature of aging-related changes because they are postulated to be neither dependent upon uncontrolled damage nor the cellular capacity to prevent it. Instead, the authors suggest that the damage accumulated during aging is a secondary effect rather than a direct cause of **senescence**. The authors have shown that cells exert control not only on their level of antioxidant defense but also on their rate of oxidant production. The authors postulate that aging is the terminal stage of development, and as such is influenced genetically. The authors also postulate that a definite sum of energy is required to complete the genetic programs associated with aging. Thus, the rate of aging is linked to the level of oxidative **stress** ; the rate of energy utilization is postulated to determine the level of oxidative **stress**. Oxidative **stress** is one of the factors which appears to govern changes in **gene** expression during differentiation and we suggest that it causes alterations in **gene** expression during aging. In the authors revised hypothesis, free radicals promote aging by affecting specific genetic programs and the incidental damage they inflict in cells is only a by-product of this process. (ABSTRACT TRUNCATED AT 400 WORDS)

L5 ANSWER 16 OF 24 MEDLINE
AN 91077288 MEDLINE
DN 91077288 PubMed ID: 2257242
TI Corticosteroids and the brain.
AU de Kloet E R; Reul J M; Sutanto W

CS Department of Neuroendocrine Pharmacology, University of Leiden, The Netherlands.
SO JOURNAL OF STEROID BIOCHEMISTRY AND MOLECULAR BIOLOGY, **(1990 Nov 20)** 37 (3) 387-94. Ref: 74
Journal code: 9015483. ISSN: 0960-0760.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, TUTORIAL)
LA English
FS Priority Journals
EM 199101
ED Entered STN: 19910322
Last Updated on STN: 19910322
Entered Medline: 19910129
AB Mineralocorticoid (MR) and glucocorticoid receptors (GR) are expressed in the central nervous system. Radioligand binding studies, autoradiography, immunocytochemistry and in situ hybridization have shown that MR and GR are found in abundance in neurons of the limbic system (hippocampus), a structure involved in mood, affect and subtle control of the hypothalamic-pituitary-adrenal (HPA) axis. In the hippocampus MR binds corticosterone (CORT) as well as aldosterone (ALDO) with high affinity. MR seems mainly occupied by CORT in the face of its 2-3 order higher circulating concentration. GR binds CORT with a 6-10-fold lower affinity. MR and GR **gene** expression, as well as the native receptor proteins, seem to be controlled in a coordinative manner. When GR is down-regulated by excess homologous steroid, MR appears to be increased. Down regulation of MR reduces GR as well. MR and GR display a differential ontogenetic pattern. Ontogeny, particularly that of GR, can be permanently influenced when animals are exposed during the first post-natal week of maternal deprivation, handling, CORT or ACTH1-24 injections. These MR and GR changes persist into **senescence** and have been proposed to result in altered CORT responsiveness, **stress** regulation, behavioural adaptation and brain aging.

L5 ANSWER 17 OF 24 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
AN 1990:97914 BIOSIS
DN BR38:43199
TI JASMONATES HORMONAL REGULATORS OR **STRESS** FACTORS IN LEAF **SENESCENCE**?.
AU PARTHIER B
CS INST. PLANT BIOCHEM., ACAD. SCI., DDR-4050 HALLE, WEINBERG 3, GDR.
SO J. Plant Growth Regul., (1990) 9 (1), 57-63.
CODEN: JPGRDI. ISSN: 0721-7595.
FS BR; OLD
LA English

L5 ANSWER 18 OF 24 MEDLINE
AN 90214755 MEDLINE
DN 90214755 PubMed ID: 2632278
TI Growth factors as probes of cell aging.
AU Cristofalo V J; Doggett D L; Brooks-Frederich K M; Phillips P D
CS Wistar Institute of Anatomy and Biology, Philadelphia, Pennsylvania 19104-4268.
NC AG00131 (NIA)
AG00378 (NIA)
SO EXPERIMENTAL GERONTOLOGY, **(1989)** 24 (5-6) 367-74.
Journal code: 0047061. ISSN: 0531-5565.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199005
ED Entered STN: 19900622

Last Updated on STN: 20000303
Entered Medline: 19900518

AB We present examples of four types of alterations which contribute to the **senescence** phenotype of WI-38 cells: a) in senescent cells there is an increased lability of the tyrosine autophosphorylation capacity of detergent isolated EGF receptor; b) following serum stimulation, the calmodulin protein level fails to increase in senescent cells, although the calmodulin mRNA level increases as expected; c) following **heat shock** at 43 degrees C, senescent cells produce both less RNA and less protein for the HSP70 and HSP90 **genes**; d) we find that membranes isolated in basic buffer from senescent or young cells increase the EGF proliferative response of senescing cells, in contrast to the finding by others that membranes isolated in neutral buffer inhibit cell proliferation (Pereira-Smith et al., Senescent and quiescent cell inhibitors of DNA synthesis Exp. Cell Res. 160, 297-306, 1985; Stein and Atkins, Membrane-associated inhibition of DNA synthesis in senescent human diploid fibroblasts: Characterization and comparison to quiescent cell inhibitor. Proc. Natl. Acad. Sci. USA 83 9030-9034, 1986). We conclude that **senescence** alterations are complex and occur at many levels, and that **senescence** changes are not identical to quiescence features.

L5 ANSWER 19 OF 24 MEDLINE
AN 91175857 MEDLINE
DN 91175857 PubMed ID: 2488297
TI Cell proliferation, cell death and aging.
AU Franceschi C
CS Institute of General Pathology, University of Modena Medical School, Italy.
SO AGING, **(1989 Sep)** 1 (1) 3-15. Ref: 90
Journal code: 9102503. ISSN: 0394-9532.
CY Italy
DT Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, ACADEMIC)
LA English
FS Priority Journals
EM 199104
ED Entered STN: 19910519
Last Updated on STN: 19910519
Entered Medline: 19910430

AB An integrated view of the processes which most likely play a critical role in the aging process at the cellular level is proposed. Cells are continuously exposed to a variety of internal and external stressors, potentially dangerous for the maintenance of the functional integrity of the cell (UV and gamma radiation, heat, oxygen free radicals, glucose, bacteria, viruses). In the course of evolution a number of mechanisms [DNA repair, production of **heat shock** and other **stress** proteins, enzymatic and non-enzymatic antioxidant defence systems, poly(ADP-ribose) polymerase activation] have emerged which allow the cell to cope with such a variety of potentially harmful agents. These mechanisms are in fact interconnected and constitute a network of cellular defence systems. It is suggested that they play a physiological role, being involved in the control of **gene** expression. A failure of these mechanisms does not allow the cell to maintain homeostasis and has profound consequences as far as two of the major programs of the cell are concerned, i.e. cell proliferation and cell death. Recent data suggesting that these are two physiologically active phenomena tightly linked and regulated are examined. Thus, activation of cell cycle related **genes** and active inhibition of suicide **genes** appear to be a part of an integrated process. Conversely, deprivation of growth factors seems able to induce an active process of programmed cell death characterized by Ca++,Mg+(+)-dependent endonuclease activity and DNA fragmentation (apoptosis). Similar phenomena have been shown to accompany

the terminal differentiation process in several cellular systems. The understanding of the factors which favour or prevent cell death (a phenomenon which has been recognized as one of the most important in fetal development and morphogenesis) will help to unravel and eventually to manipulate the aging process. In an evolutionary perspective, cell **senescence** appears to be the price paid to avoid unlimited capability of proliferation, i.e. cell transformation and cancer.

L5 ANSWER 20 OF 24 MEDLINE DUPLICATE 2
AN 88234568 MEDLINE
DN 88234568 PubMed ID: 3131774
TI Aging results in an unusual expression of Drosophila **heat shock** proteins.
AU Fleming J E; Walton J K; Dubitsky R; Bensch K G
CS Ryoichi Sasakawa Center for Aging Research, Linus Pauling Institute of Science and Medicine, Palo Alto, CA 94306.
SO PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA, **(1988 Jun)** 85 (11) 4099-103.
Journal code: 7505876. ISSN: 0027-8424.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 198807
ED Entered STN: 19900308
Last Updated on STN: 19900308
Entered Medline: 19880708
AB We used high-resolution two-dimensional polyacrylamide gel electrophoresis to evaluate the effect of aging on the **heat shock** response in Drosophila melanogaster. Although the aging process is not well understood at the molecular level, recent observations suggest that quantitative changes in **gene** expression occur as these fruit flies approach **senescence**. Such genetic alterations are in accord with our present data, which clearly show marked differences in the synthesis of **heat shock** proteins between young and old fruit flies. In 10-day-old flies, a **heat shock** of 20 min results in the expression of 14 new proteins as detectable by two-dimensional electrophoresis of [35S]methionine-labeled polypeptides, whereas identical treatment of 45-day-old flies leads to the expression of at least 50 new or highly up-regulated proteins. In addition, there is also a concomitant increase in the rate of synthesis of a number of the normal proteins in the older animals. Microdensitometric determinations of the low molecular weight **heat shock** polypeptides on autoradiographs of five age groups revealed that their maximum expression occurs at 47 days for a population of flies with a mean life span of 33.7 days. Moreover, a **heat shock** effect similar to that observed in senescent flies occurs in young flies fed canavanine, an arginine analogue, before **heat shock**.

L5 ANSWER 21 OF 24 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
AN 1988:305489 BIOSIS
DN BA86:22527
TI WATER RELATIONS IN WINTER WHEAT AS DROUGHT RESISTANCE INDICATORS.
AU SCHONFELD M A; JOHNSON R C; CARVER B F; MORNHINWEG D W
CS UNIV. IDAHO RES. AND EXT. CTR., ABERDEEN, IDAHO 83210.
SO CROP SCI, (1988) 28 (3), 526-531.
CODEN: CRPSAY. ISSN: 0011-183X.
FS BA; OLD
LA English
AB Although drought is recognized as an important limitation to wheat (Triticum aestivum L.) production in many regions, drough resistance selection techniques are not adequately developed. In 1984-1985 and 1985-1986, field experiments were conducted in Stillwater, OK [Oklahoma, USA] to determine potential drought resistance parameters and their

inheritance in winter wheat. Single plants of drought resistant 'TAM W-101' and drought susceptible 'Sturdy', their F1 and F2 progeny, and backcrosses of the F1 to each parent were evaluated under a rain shelter. Tiller number was recorded throughout the growing season. As **stress** developed during reproductive development, water potential (WP), solute potential (SP), turgor potential (TP), and relative water content (RWC) were measured at 7- to 10-d intervals on single leaves until flag leaf **senescence**. Tiller number and growth rate were similar among the six populations. Water potential, WP components, and RWC declined with increasing drought **stress**, but no significant differences among populations were found in WP, SP, or TP. Relative water content differed significantly among populations under increasing drought **stress**. TAM W-101 maintained a higher RWC under drought condition than Sturdy, and had a longer grain-filling period. Comparison of the RWC values among populations indicated that differences were controlled predominantly by **genes** with additive effects. Narrow-sense heritability (h2) of RWC increased as drought **stress** intensified and reached a maximum value of 0.64 1 wk prior to flag leaf **senescence**. With this high h2, RWC shows promise as a selection criterion for drought resistance in winter wheat.

L5 ANSWER 22 OF 24 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
AN 1989:135993 BIOSIS
DN BA87:70646
TI JASMONATE-INDUCED ALTERATION OF **GENE** EXPRESSION IN BARLEY LEAF SEGMENTS ANALYZED BY IN-VIVO AND IN-VITRO PROTEIN SYNTHESIS.
AU MUELLER-URI F; PARTHIER B; NOVER L
CS INST. FUER BIOCHEMIE DER PFLANZEN, AKADEMIE DER WISSENSCHAFTEN DER DDR, WEINBERG 3, DDR-4050 HALLE, EAST GERMANY.
SO PLANTA (BERL), (1988) 176 (2), 241-247.
CODEN: PLANAB. ISSN: 0032-0935.
FS BA; OLD
LA English
AB Jasmonic-acid methylester promotes barley leaf **senescence** without changing the average synthesizing capacity for bulk leaf proteins in the treated tissues. This protein balance is the result of a massive formation of jasmonate-induced proteins (JIPs), which cannot be detected in controls (water-treated leaf segments). Jasmonate-induced proteins synthesized in vivo are virtually identical to the respective polypeptides translated in a wheat-germ system if programmed with the RNA of jasmonate-treated leaf segments. Both in-vivo- and in-vitro formed JIPs correspond with molecular sizes of Mr 110, 66, 30, 23 and 10/12 kilodaltons. This observation indicates little if any post-translational modification. Specific mRNAs for JIPs and the JIPs labeled in vivo can be detected 3-5 h after jasmonate addition. Synthesis of JIPs increases up to 24 h whereas, at the same time, the translatable mRNAs for normal leaf proteins decrease drastically. This massive alteration of **gene** expression is reminiscent of **heat-shock** or other **stress** responses, but the proteins induced by jasmonate differ from those induced by elevated temperature with respect to molecular size, immunological relatedness, and kinetics of synthesis. It is suggested that JIP synthesis is rather a cause than a consequence of the common **senescence** symptoms and thus could represent some kind of early " **stress**" response in **senescence** induced by jasmonic-acid methylester. The action of jasmonic-acid methylester in **gene** expression points to a control at the transcript level.

L5 ANSWER 23 OF 24 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
AN 1988:81068 BIOSIS
DN BR34:37587
TI ROLE OF OXIDATIVE **STRESS** IN CELLULAR DIFFERENTIATION AND CELLULAR **SENESCENCE**.
AU SOHAL R S
CS DEP. BIOL., SOUTHERN METHODIST UNIV., DALLAS, TEX. 75275, USA.

SO SECOND INTERNATIONAL CONGRESS OF BIOMEDICAL GERONTOLOGY, HAMBURG, WEST GERMANY, JULY 15-17, 1987. AGE (OMAHA). (1987) 10 (3), 112.
CODEN: AGEEDB. ISSN: 0161-9152.
DT Conference
FS BR; OLD
LA English

L5 ANSWER 24 OF 24 MEDLINE DUPLICATE 3
AN 83287623 MEDLINE
DN 83287623 PubMed ID: 6884439
TI Long-term observations on the effect of polyadenylic acid in mice of different ages.
AU Penzes L; Beregi E; Regius O
SO EXPERIMENTAL GERONTOLOGY, **(1983)** 18 (2) 89-94.
Journal code: 0047061. ISSN: 0531-5565.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 198310
ED Entered STN: 19900319
Last Updated on STN: 19900319
Entered Medline: 19831028
AB In order to better life performance, polyadenylic acid (poly (A)) was given intraperitoneally to CBA/Ca mice for almost a two-year period. This substance, as one of the components of double-stranded **polynucleotides** (like poly A:U), is known to improve some immune responses of the aging organism. Five approaches (changes in body-weight, adaptation to cold **stress**, biological half-life of body proteins, mortality and pathology) were applied to test the effects of this substance on life performance. It was found that the beneficial effects of double-stranded **polynucleotides** cannot be mimicked by polyadenylic acid only, despite its anti-**senescence** effect, namely, it accelerates the apparent protein turnover, cf., biological half-life. Polyadenylic acid shortens life-expectancy (because of the higher mortality rate of mice). Possible mechanisms of these actions are discussed.

=>

---Logging off of STN---

=>
Executing the logoff script...

=> LOG Y

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	38.37	38.58

STN INTERNATIONAL LOGOFF AT 13:30:00 ON 15 APR 2003